

January 13 to 19, 2013 (Week 03)

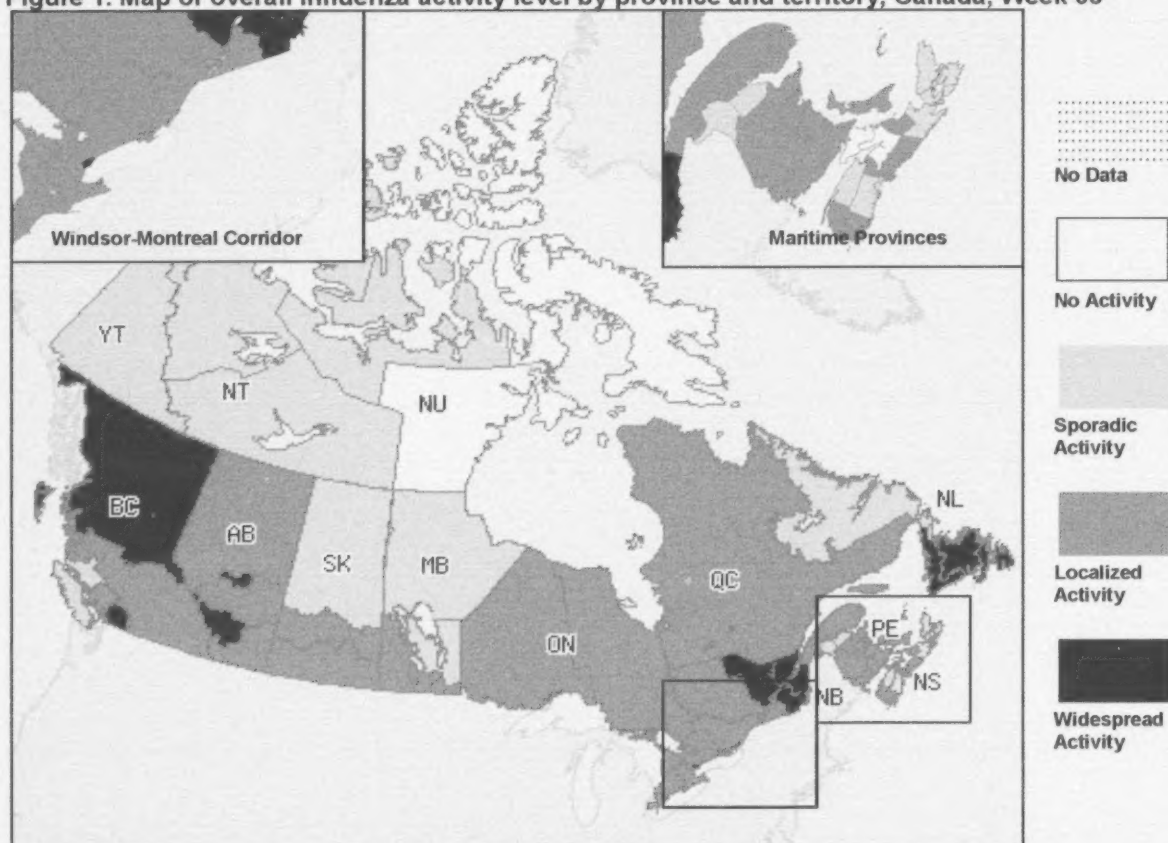
Overall Influenza Summary

- The percentage of positive laboratory tests for influenza declined in week 03 for the third week in a row. Influenza A(H3N2) continues to be the predominant strain in Canada.
- Many regions across Canada continue to report widespread and localized influenza activity and 118 new influenza outbreaks were reported.
- The ILI consultation rate decreased but continues to be above the expected range for this time of year, possibly due in part to the circulation of both influenza and RSV in many regions.
- Similar to previous years, older adults (persons aged ≥ 65 years) are the most affected this season; with 49.4% of laboratory detections to date, 67.6% of adult hospitalizations reported through the PCIRN-SOS network, outbreaks in long-term care facilities, and a high proportion of antiviral prescriptions.

Influenza Activity (geographic spread) and Outbreaks

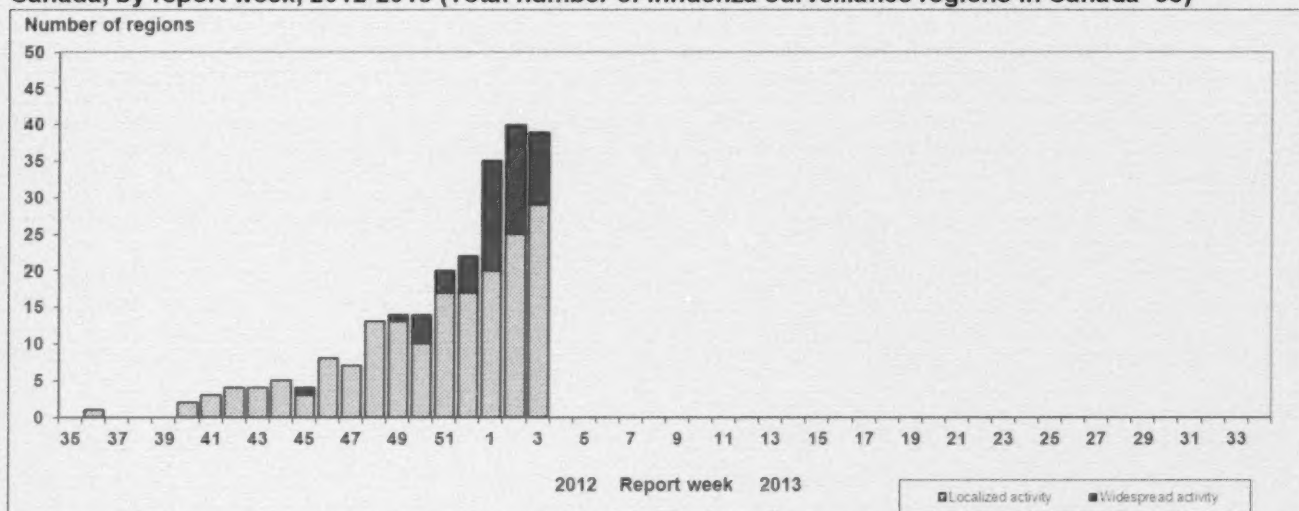
In week 03, 10 regions [in BC(2), AB(2), ON(1), QC(2) and NL(3)] reported widespread activity and 29 regions [in BC(2), AB(3), SK(2), MB(3), ON(6), QC(4), NB(5), NS(3), and PE(1)] reported localized activity (Figures 1 and 2). In week 03, 118 new influenza outbreaks were reported: 71 in long-term-care facilities, 6 in hospitals, 10 in schools, and 31 in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 03



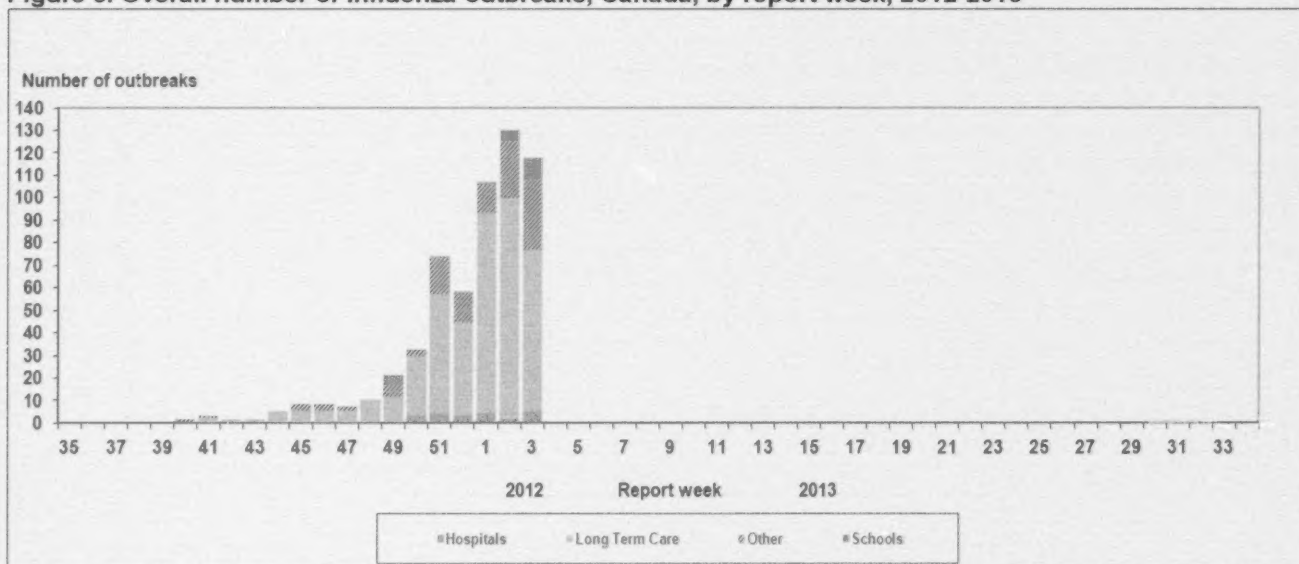
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions[†] reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



[†] sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests decreased from 30.8% in week 02 to 27.1% in week 03 (Figure 4). Among the influenza viruses detected in week 03 (n=2840), 97.9% were positive for influenza A viruses [of which 35.6% were A(H3), 3.7% were A(H1N1)pdm09, and 60.8% were A(unsubtyped)]; and 2.1% were positive for influenza B (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 97.6% influenza A [35.6% A(H3), 1.8% A(H1N1)pdm09 and 62.6% A(unsubtyped)] and 2.4% influenza B (Table 1).

Detailed information on age and type/subtype was received for 15,833 cases to date this season (Table 2). The proportions of cases by age group were as follows: 12.6% were < 5 years; 6.9% were between 5-19 years; 14.9% were between 20-44 years; 16.1% were between 45-64 years of age; 49.4% were ≥ 65 years.

The percentage of tests positive for RSV was steady at 11.4% in week 03. The percentage of tests positive for rhinovirus (4.2%), parainfluenza (2.4%), and coronavirus (4.7%) each decreased slightly compared to the previous week. Other percentages of positive tests remained low in week 03: adenovirus 0.9%; hMPV 1.3% (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada Report](#).

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (January 13 to January 19, 2013)						Cumulative (August 26, 2012 to January 19, 2013)					
	Influenza A					B Total	Influenza A					B Total
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*		A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	
BC	255	0	149	15	91	16	805	0	684	28	93	61
AB	195	0	118	31	46	12	1823	0	1531	154	138	113
SK	73	0	33	1	39	4	606	0	399	5	202	38
MB	130	0	0	0	130	5	363	0	61	1	301	24
ON	1116	0	525	48	543	7	6200	0	3115	128	2957	97
QC	684	0	53	2	629	15	8487	0	504	16	7967	134
NB	143	0	111	5	27	0	484	0	382	15	87	2
NS	24	0	0	0	24	0	37	0	0	0	37	2
PE	12	0	0	0	12	0	37	0	24	1	12	1
NL	149	0	0	0	149	0	390	0	152	0	238	1
Canada	2781	0	989	102	1690	59	19232	0	6852	348	12032	473

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (January 13 to January 19, 2013)					Cumulative (Aug. 26, 2012 to January 19, 2013)				
	Influenza A				B Total	Influenza A				B Total
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped		A Total	Pandemic H1N1	A/H3N2	A unsubtyped	
<5	172	9	48	115	3	1921	61	645	1215	80
5-19	79	1	17	61	4	1023	15	453	555	74
20-44	203	14	78	111	8	2286	79	909	1298	71
45-64	240	11	88	141	5	2493	72	892	1529	60
65+	896	9	388	499	11	7735	40	2823	4872	90
Unknown	56	4	52	0	0	121	6	113	2	0
Total	1646	48	671	927	31	15579	273	5835	9471	375

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

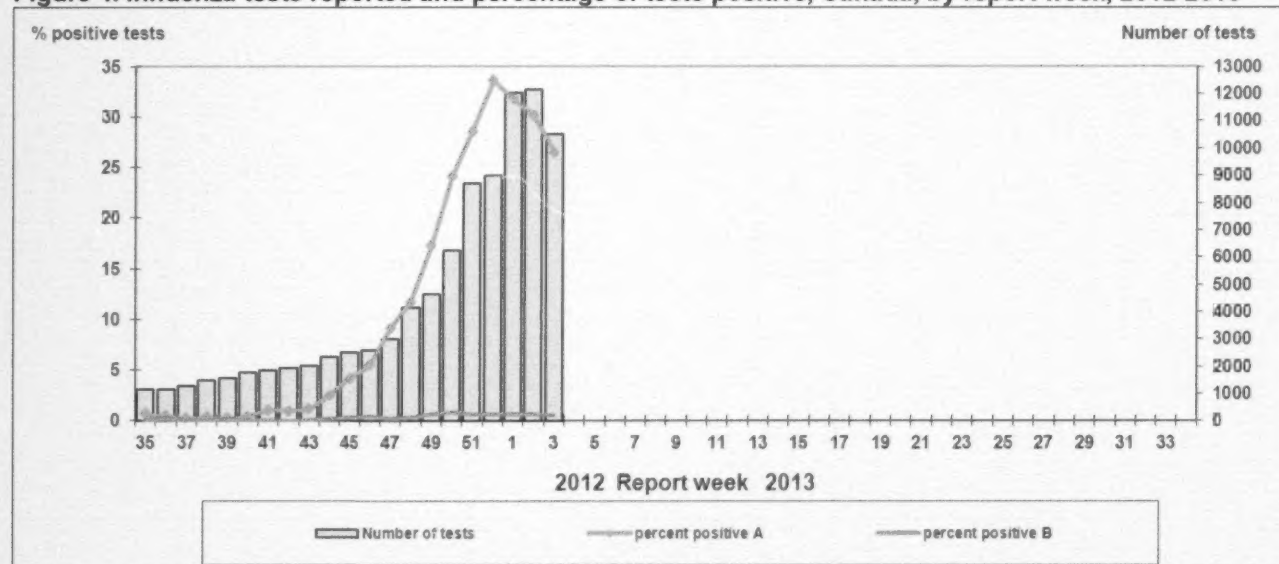
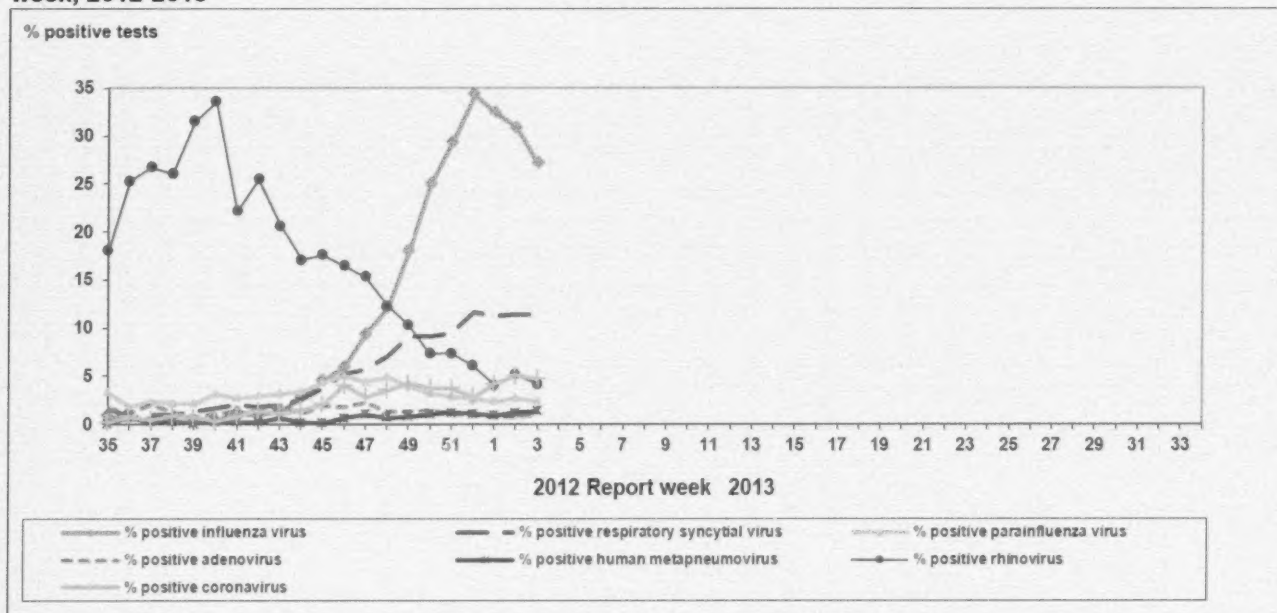


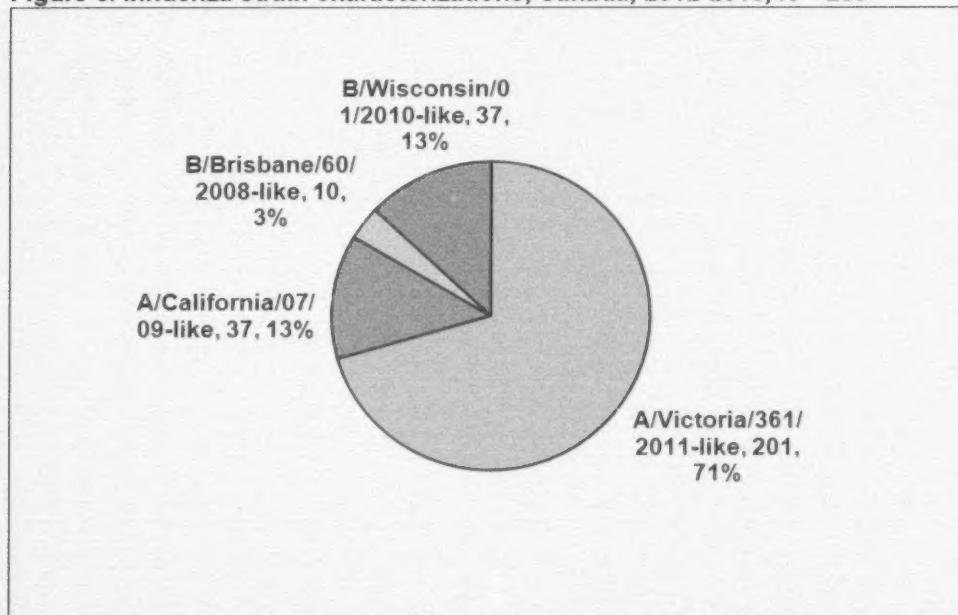
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 285 influenza viruses [201 A(H3N2), 37 A(H1N1)pdm09, and 47 influenza B]. The 201 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 37 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 37 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 10 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 285



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 274 influenza viruses for resistance to oseltamivir and zanamivir, respectively. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 407 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

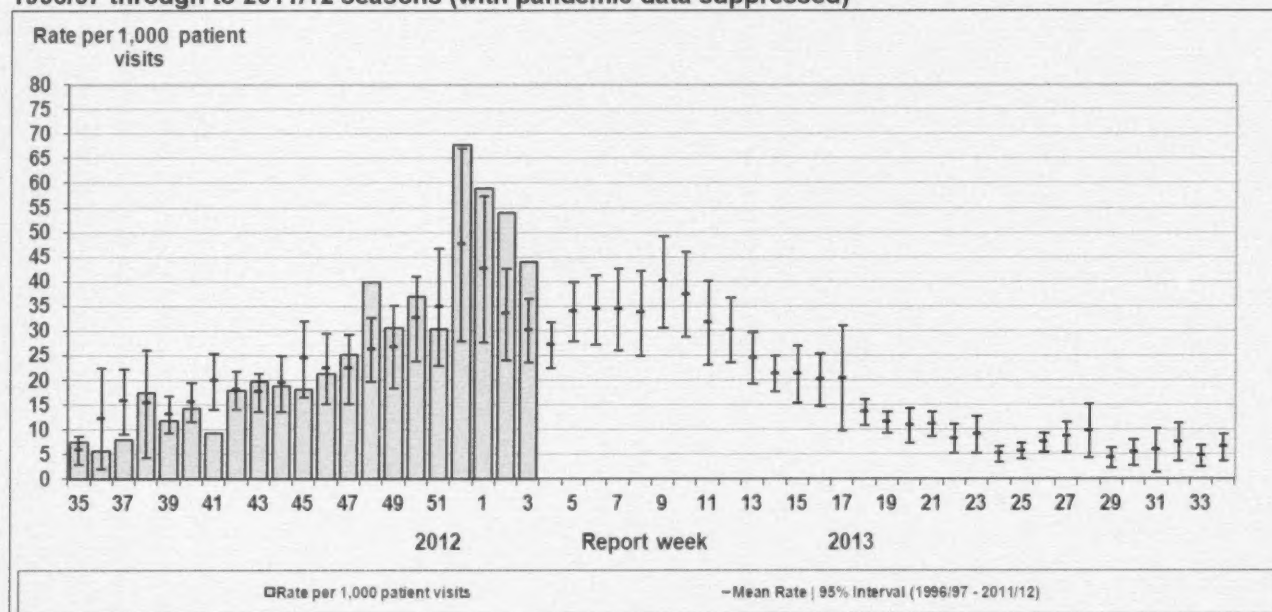
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	196	0	195	0	369	369 (100%)
A (H1N1)	36	0	37	0	38	38
B	42	0	42	0	NA*	NA*
TOTAL	274	0	274	0	407	407 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 54.0 ILI consultations per 1,000 patient visits in week 02 to 43.8 in week 03. This rate is above the expected level for this time of year (between 23.5 and 36.5 ILI consultations per 1,000 visits) (Figure 7). The elevated ILI consultation rate relative to the expected range for this time of year may be due to the unusually early influenza season, as well as continued circulation of influenza and RSV across Canada. In week 03, the highest consultation rates were observed in children 5-19 years of age (60.5/1,000) followed by adults ≥65 years of age (57.9/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate increased slightly from 285.5 antiviral prescriptions per 100,000 new prescriptions dispensed in week 02 to 294.8 in week 03. In week 03, the antiviral prescription rate decreased for the adult age group, and increased for infants, children and seniors. The highest rate continued to be observed for seniors ≥ 65 years, at 644.8/100,000. The current proportion of antiviral prescriptions of 294.8/100,000 is higher than the rate observed during the peak period of influenza activity last year (50-100/100,000). While the percentage of positive laboratory tests for influenza has declined over recent weeks, the proportion of antiviral prescriptions continues at similar levels, possibly due to sustained influenza activity in many regions across Canada.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 03, 49 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 61 in week 02. Among the 47 cases identified with influenza A, 38 (80.9%) were A(untsubtyped), 5 (10.6%) were A(H3N2) and 4 (8.5%) were A(H1N1)pdm09. Two cases were identified with influenza B. The age distribution is as follows: 5 cases (10.2%) under 6 months of age, 18 (36.7%) between 6-23 months, 19 (38.8%) aged 2-4 years, 5 (10.2%) aged 5-9 years, and 2 (4.1%) aged 10-16 years. Four ICU admissions were reported during this week, two <6 months of age, one 6-23 months of age and one aged 2-4 years.

Since the start of the 2012-13 season, a total of 461 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 444 (96.3%) with influenza A [of which 61 (13.7%) were A(H3N2), 7 (1.6%) were A(H1N1)pdm09 and 376 (84.7%) were A(untsubtyped)], and 17 (3.7%) with influenza B. The distribution of cases by age group is as follows: 100 (21.7%) <6 months of age; 108 (23.4%) age 6-23 months; 135 (29.3%) age 2-4 years; 77 (16.7%) age 5-9 years; and 41 (8.9%) age 10-16 years. Forty of the 461 cases (8.7%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 03, 43 new laboratory-confirmed influenza-associated adult (16 years of age and older) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 72 in week 02. The age distribution is as follows: 25 cases (58.1%) were ≥ 65 years of age, 11 (25.6%) cases were aged 45-64 years, and 7 (16.3%) cases were aged 20-44 years. Among the 41 cases identified with influenza A, one was A(H3N2), and the rest were A(untsubtyped). One case was identified with influenza B, and in one case the influenza type has yet to be reported. Three ICU admissions were reported during the current week. All three had influenza A(untsubtyped), with two individuals aged ≥ 65 years, and the third aged 45-64 years. Three deaths were reported with influenza A(untsubtyped) in individuals ≥ 65 years of age.

From November 4, 2012 to January 19, 2013, a total of 539 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 504 (93.5%) with influenza A [of which 46 (9.1%) were A(H3N2), 3 (0.6%) were A(H1N1)pdm09, and 455 (90.3%) were A(untsubtyped)]; 11 (2.0%) with influenza B, and the type has not yet been reported for 24 (4.5%) cases. Among the 537 cases with available data, the distribution of cases by age group is as follows: 363 cases (67.6%) were aged ≥ 65 years, 119 cases (22.2%) were aged 45-64 years, 52 (9.7%) were aged 20-44 years, and 3 cases (0.6%) were <20 years of age. Thirty-two of the 539 cases (5.9%) were admitted to ICU: 19 (59.4%) were in adults aged ≥ 65 years, 7 (21.9%) were aged 45-64 years, and 6 (18.8%) were aged 20-44 years. Of the 32 ICU admissions, 10 cases (31.3%) had at least one co-morbidity or chronic illness, 2 (6.3%) had no co-morbidities or chronic illnesses, and 20 (62.5%) had no available information to date. A total of 25 deaths have been reported, 3 (12.0%) with influenza A(H3N2), and the remaining 22 (88.0%) with influenza A(untsubtyped). Twenty-one of the 25 deaths (84%) were in adults aged ≥ 65 years, three were aged 45-64 years, and one was aged 20-44 years. Three deaths occurred in individuals who had at least one co-morbidity or chronic illness. Detailed clinical information on comorbidities and chronic illnesses is not known for the remaining 22 cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

The number of laboratory confirmed influenza associated hospitalizations declined in week 03 to 583 (from 823 in week 2)*. The majority of cases were influenza A (97.8%), predominately A(H3). More than half of the cases (61.9%, 361/583) were aged 65+. Of the 96 cases with available data, 11 (11.5%) were admitted to the Intensive Care Unit

(ICU). Thirty-nine deaths were reported in week 03: 30 (76.9%) were persons aged 65+; 8 (20.5%) were adults aged 45-64 years and one was a child aged 0-4 years. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

To date this season, 2212 influenza-associated hospitalizations have been reported. Of these, 97.8% (2164/2212) have been influenza A, predominately A(H3) [95.8% (925/966) of subtyped influenza A]; and 2.2% have been influenza B. More than half (57.6%) of the 2209 cases with available age were aged ≥65 years; 16.5% were 45-64 years; 8.4% were 20-44 years; 1.1% were 15-19 years; 3.2% were children aged 5-14 years and 13.3% were children aged 0-4 years. Among the 478 cases with available data, there have been 66 hospitalisations for which admission to ICU was required; the highest proportions were among adults ≥65 years of age (37.9%), and between 45 and 64 years of age (33.3%). To date this season, 146 deaths have been reported: 81.5% were persons aged ≥65 years of age, 13.0% were adults aged 45-64 years; 2.7% were adults aged 20-44 years and 2.7% were children aged 0-4 years. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note: * The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: As of 18 January 2013, influenza activity remained high in North America, but may have peaked in some areas. The distribution of influenza sub/types continues to show a predominance of: A(H3N2) in Canada, influenza B in Mexico, and a mixed proportion of A(H3N2) and influenza B in the United States. Countries in Europe and temperate regions of Asia are reporting increasing influenza activity, with a greater proportion of A(H1N1)pdm09 detected in Europe compared to North America. Countries in the Eastern Mediterranean and North Africa report declining influenza activity with A(H1N1)pdm09 predominant. Persistent low-level circulation of influenza continues in tropical regions of Asia. In the Caribbean, central America and tropical South America, influenza activity is at low levels, except in Bolivia where there is increasing circulation of A(H3N2).

World Health Organization influenza update

United States: During week 03, influenza activity remained high in the United States, but decreased some areas. Forty-seven states reported widespread influenza activity, two states reported regional influenza activity, and the District of Columbia and one state reported local activity. The national percentage of outpatient visits for ILI was 4.3% which is above the national baseline of 2.2%. All 10 regions reported ILI above region-specific baseline levels, and 26 states and New York City experienced high ILI activity in week 03. During week 03, the percentage of deaths due to pneumonia and influenza was 9.8%, which is above the epidemic threshold of 7.3%. The proportion of tests positive for influenza viruses declined to 26.1% in week 03. Of the positive influenza detections, 80.4% were positive for influenza A viruses. Of the 1636 influenza A viruses for which subtype information was available, 96.5% were A(H3) and 3.5% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 751 influenza viruses. Among influenza A viruses, 465 were A/Victoria/361/2011-like, two (0.4%) of which showed reduced titers; and 54 were A/California/7/2009-like. Among influenza B viruses, 160 (69.0%) were B/Wisconsin/01/2010-like belong to the Yamagata lineage of viruses; and 72 (31.0%) to the B/Victoria lineage. One oseltamivir-resistant A(H1N1)pdm09 virus was reported in week 03, the first of this season. Among the 6,191 influenza-associated hospitalizations reported to date this season, 50% were among adults ≥65 years. Thirty-seven influenza-associated paediatric deaths have been reported to date this season, 21 with influenza A and 16 with influenza B.

Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 03, consultation rates for ILI and acute respiratory infection (ARI) are increasing in most countries, although overall intensity remains low. There is continued co-circulation of A(H1N1)pdm09, A(H3N2) and influenza B, and the proportion of A(H1N1)pdm09 continues to increase, accounting for 80% of subtyped influenza A in week 03. Since week 40, 16,457 specimens of influenza viruses have been typed: 69% were influenza A and 31% were influenza B. Among the 6698 influenza A viruses for which subtype information was available, 68% were A(H1N1)pdm09 and 32% were A(H3N2). Among 788 characterized influenza B viruses, 90% belonged to the Yamagata lineage, and 10% to the Victoria lineage. The number of hospitalizations due to severe acute respiratory illness (SARI) is increasing slowly, in keeping with the rising influenza activity in the region.

EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza

No new human cases of avian influenza were reported by WHO between 17 December 2012 and 16 January 2013. There has been recent circulation of influenza A(H5N1) clade 2.3.2.1. among poultry in Indonesia, a country in which this clade had not previously been detected. However, based on current information, the public health risk from A(H5N1) of the 2.3.2.1. clade does not seem to be different from that of other clades.

WHO Influenza at the human-animal interface

Human Swine Influenza

No new human cases of infection with swine influenza viruses or variants were reported in week 03.

Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles.